Space Weather Forecast

Issued on Friday, 04 March 2022 at 01:14 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Minor Geomagnetic Storms. Slightly increasing chance of R1 Minor Radio Blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Low over the period, with isolated Common class flares, the largest of which peaked at 03/2155 UTC. This flare was emitted from AR2958, despite the region's small and innocuous appearance, and being barely visible. This region is one of six numbered regions on the disc, along with a new and un-numbered small and simple region in the southeast quadrant. AR2954 and 2955 remain simple, mature and stable nearing the western solar horizon. AR2957 has reduced slightly, losing some penumbra. AR2959 is currently classified as the largest region on the visible disc, but AR2960 is likely to replace AR2959 as the largest and most complex region on the visible disc, once analysis becomes easier as AR2960 rotates further onto the visible disc.

The long duration Common class flare may have produced a Coronal Mass Ejection (CME), which potentially could have an Earth directed element. However, currently there is limited imagery available to verify this possibility.

Solar Wind / Geomagnetic Activity: The solar wind speed started the period slightly elevated close to 430 km/s, then declined to background levels through the day, before increasing slightly through the evening to end the period at slightly elevated levels again, around 410 km/s. The strength of the solar winds magnetic field was weak throughout, as was the important north-south component of the magnetic field. Geomagnetic activity remained Quiet.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Low, with occasional Common class flares and a chance of Moderate class flares. No significant regions are expected to rotate onto the visible disc from the far side through the period.

Solar Wind / Geomagnetic Activity: Earth is likely to experience a fast wind from two successive coronal holes. A CME, emitted on 2nd March, may brush Earth on day 3 (6th). Geomagnetic activity is expected to be Quiet to Unsettled at first, increasing Unsettled to Active today and then at times through the rest of the period, with a chance of isolated Minor geomagnetic storm intervals.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	40	30	40	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	3	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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